should keep suitable records. If this course had been followed in Ayrshire, some 500,000*l.* might have been saved. But our local authorities have not yet acknowledged the duty.

It has been left to the meteorological societies, or the Meteorological Office, or the British Rainfall Organisation to collect such observations of weather as are made for country landowners or by meteorological enthusiasts in various localities; the distribution is naturally haphazard. Moreover, with the possible exception of the water engineer, the people who have to carry out such schemes have no training in the use of the collected information or in how to find it, and without some experience the tables are difficult to use. Much of the information requires re-working in order to answer special questions. For those who know where to look for it, there is a vast mine of information about the climatology of the British Isles, but, for lack of schools devoted to such sciences, it is largely unworked. An authoritative compilation is much needed. The Royal Meteorological Society, in co-operation with the Meteorological Office, began to work the data for a climatological atlas shortly before the war, but has had to discontinue the task for the present. It was thought at the time to be an undertaking of great utility, but that its present worth might run to six figures in a single case was clearly not realised.

NOTES.

The twelfth annual meeting of the British Science Guild will be held at the Mansion House on Wednesday, June 19, at 4 p.m., the Lord Mayor in the chair. Lord Sydenham, president of the guild, will deliver an address on "Education, Science, and Leadership"; and other speakers will be Sir Algernon Firth, Bart., and Sir Henry Newbolt. Tickets of admission may be obtained from the Secretary, British Science Guild, 199 Piccadilly, London, W.1.

The Lords Commissioners of H.M. Treasury have approved the proposal of the Meteorological Committee that, in view of the variety and importance of the scientific problems upon which the Meteorological Office is required to advise the fighting forces, Sir Napier Shaw shall, for the period of the war, become scientific adviser to His Majesty's Government in meteorology, and be relieved of the administrative duties of the Meteorological Office, but retain the chairmanship of the Meteorological Committee. Lt.-Col. H. G. Lyons, with the sanction of the War Office, has been appointed acting director of the Meteorological Office for the same period. We most heartily congratulate the Government and Sir Napier Shaw upon this appointment. Meteorology in England has made great progress during the last twenty years, and a large share of the credit for this must be given to Sir Napier's administration of the Meteorological Office and to his lectures and papers on the subject. The value in war of correct forecasts is obvious, but there are many other ways in which an intimate knowledge of meteorology may be of use, and no more suitable man could have been found for the new post.

The return to Copenhagen from Greenland, *via* the Faröe Islands, of Mr. Knud Rasmussen, the Danish Arctic explorer, is announced by Reuter's Agency. In 1916 Mr. Rasmussen explored the coasts of Melville Bay between Upernivik and Cape York, as ice prevented his reaching his station at Thule, in North Star Bay. In 1917 he returned to his original programme of exploring the north-west coast of Greenland, with special reference to Eskimo migrations. This was almost the last unexplored part of the Greenland coast. The expedition also planned to carry mails to the American Crocker Land Expedition and its relief expedition, the latter supposed then to be at North Star Bay, south of Smith Sound. The news now to hand through a Reuter message reports that Mr. Rasmussen reached Sherard Osborne Fjord early in May, 1917, and spent the summer in mapping the little-known fjords as far north as De Long Fjord. The difficulties of travelling were accentuated by the absence of game. In the beginning of August the expedition started south again over the ice, and with great difficulty reached Cape Agassiz, 140 miles north of Etah, in three weeks' time, and Etah on September 10. Dr. Wulff, one of the men of science, died of exposure. Mr. Rasmussen apparently wintered at Etah or Thule, and left Greenland this spring. He reports no trace of Eskimo migrations on the north-west coast. Apparently his plans for traversing the Canadian Arctic archipelago from east to west have been deferred.

Science has lost another distinguished young votary by the death of Capt. James Watson Pryde, who fell in action in East Africa on May 5. Capt. Pryde was a native of Dundee, and received his early education at the Morgan Academy. He then entered the University of St. Andrews, and completed his arts course with distinction in every class. With a strong bent for science, he selected zoology as his main department, and there he gained the highest honours in class and degree examinations, as well as in practical work. Moreover, he at once commenced, as Walker Trust scholar, original work at the Gatty Marine Laboratory, taking up the study of the North Sea Polychæts where another able graduate, Wm. Small, now with the fighting forces in East Africa, had left off, and his published papers show that he did so with conspicuous success. Early in his college career Pryde joined the O.T.C., and at the outbreak of the war was sergeant-major. He volunteered for service at once, and received a commission in the Black Watch, his talents, administrative skill, and agreeable bearing making him very popular. He was then attached to the King's African Rifles, and lately was at Zomba, Nyasaland, pursuing the Germans into Portuguese East Africa, in the region of the Lugenda River. He was looking forward to an early return to continue his researches and the study of medicine. The loss of a zoologist so able and accomplished, and of so gallant a soldier, is grievous.

The Trustees of the British Museum have published a report on an investigation carried out by Mr. J. Hartley Durrant, of the Natural History Museum, and Col. W. W. O. Beveridge to ascertain how and when the infestation of Army biscuits by flour-moths takes place, and whether any steps can be taken to prevent this. A list is given of eight species of beetles and four Pyralid moths that were actually found in the tins of biscuits examined. But by far the most serious pest was the moth *Ephestia kühniella*, and excellent illustrations and a full description are given both of this species and of *Corcyra cephalonica*. Evidence is adduced indicating that Central America is probably the original home of *E. kühniella*, the so-called Mediterranean flour-moth. The examination of various intact airtight tins showed that the biscuits contained in them were infested, thus indicating that the moths had gained access to them in the factory prior to packing. By means of a thermo-couple the temperature in the centre of the biscuits during baking was tested, and found to rise to a minimum of just above 100° C. It is considered improbable that insect-eggs, if present in the dough, could survive this temperature. The infestation of the biscuits must take place, therefore, during the cooling and prior to the tins being soldered. The authors suggest that a strong draught of screened cooled air should be passed over the biscuits immediately they have been baked; this would cool them more rapidly, and render it practically impossible for the moths to oviposit on them. Further, the packed tins might be punctured, heated to a lethal temperature, and then soldered up; but against this there are certain technical difficulties, and also the question of expense.

MR. D'ARCY POWER has been appointed Bradshaw lecturer of the Royal College of Surgeons of England for the ensuing year.

THE Royal Society's Croonian lecture will be delivered by Major W. B. Cannon on Thursday, June 20, the subject being "The Physiological Basis of Thirst."

THE Bathgate memorial prize of the Royal College of Surgeons of Edinburgh, consisting of a bronze medal and books, has been awarded to Miss J. A. Sang.

THE medal of the Franklin Institute, Philadelphia, has been awarded to Senator G. Marconi and Dr. T. C. Mendenhall. The presentations were made at the meeting of the institute on May 15.

AT the ordinary scientific meeting of the Chemical Society to be held on Thursday, June 6, Dr. Horace T. Brown will deliver a lecture entitled "The Principles of Diffusion: Their Analogies and Applications."

SIR JAMES DEWAR has been awarded the medal of the Society of Chemical Industry in recognition of the conspicuous services which, by his research work in both pure and applied science, he has rendered to chemical industry.

THE seventieth annual general meeting of the Somersetshire Archæological and Natural History Society will be held in the Municipal Hall, Taunton, on Tuesday, July 23, under the presidency of Prof. F. J. Haverfield, who will deliver a short address on "The Character of the Roman Empire as Seen in West Somerset."

THE eighth geophysical discussion arranged by the British Association Geophysical Committee will be held at the Royal Astronomical Society on Wednesday, June 12, at 5 p.m., Rear-Admiral J. F. Parry, Hydrographer of the Navy, in the chair. The subject will be "The Tides," and the opener will be Prof. H. Lamb, who will be followed by Prof. Love, Mr. Proudman, and others.

THE following officers and new members of council of the Institution of Electrical Engineers have been elected for the ensuing year:—*President:* Mr. C. H. Wordingham. *Vice-Presidents:* Mr. W. A. Chamen, Mr. R. A. Chattock. *Hon. Treasurer:* Mr. J. E. Kingsbury. *Ordinary Members of Council:* Mr. H. W. Clothier, Mr. D. N. Dunlop, Sir R. A. Hadfield, Bart., Prof. E. W. Marchant, Mr. C. C. Paterson, and Mr. J. Sayers.

THE officers of the Linnean Society elected for the ensuing year are:—*President:* Sir David Prain. *Treasurer:* Mr. H. W. Monckton. *Secretaries:* Dr. B. Daydon Jackson, Mr. E. S. Goodrich, Dr. A. B. Rendle. The new members of council are:—Mr. S. Edwards, Prof. J. B. Farmer, Mr. C. C. Lacaita, Mr. R. Innes Pocock, and Miss A. Lorrain Smith.

THE *British Medical Journal* announces the death on March 3, at sixty-six years of age, of Prof. C. Blarez, professor of chemistry in the University of Bordeaux. We learn that Prof. Blarez published more than two hundred memoirs on pure or applied chemistry, and was the author of a course of organic chemistry in three volumes, and of monographs on the urine and on milk. His last publication was a treatise on wines and spirits embodying the results of forty years' work.

A STRONG earthquake visited La Serena, the capital of the province of Coquimbo, in Chile, at 1 p.m. on May 20, but the damage to the town seems, according to the telegram of the *Times* correspondent, to have resulted from fires rather than from the shock itself. The disturbed area was of considerable extent, the shock being felt at Valparaiso, about 210 miles, and Santiago, about 250 miles, to the south of La Serena. As a seismic district the province of Coquimbo is one of the most sensitive in Chile, but there is nothing in the brief account to indicate that the recent earthquake was of unusual severity.

WE regret to learn of the death of Prof. Victor Commont, of the Normal School at Amiens, in his fifty-second year. Prof. Commont was an accomplished geologist and anthropologist who devoted the leisure of a busy life to the detailed study of the river deposits in the valley of the Somme, where Boucher de Perthes first brought Palæolithic implements to the notice of the scientific world. Prof. Commont's researches added precision to the earlier work, and his classic papers on the succession of implement-bearing deposits in the Somme valley form models to be followed wherever similar investigations are undertaken. In the neighbourhood of Amiens he identified deposits of all periods from that of the earliest Palæolithic man to that of the Iron age, and in numerous sections he clearly discovered their relationships. He also devoted much attention to the implements themselves, and had an unrivalled knowledge of the successive types. In 1913 Prof. Commont visited London to examine some of the typical localities in the Thames valley, and to study the newly found collection from Piltdown, Sussex. His premature death is indeed a serious loss to prehistoric research.

IN the Journal of the Royal Anthropological Institute (vol. xlvii., July–December, 1917) Mr. Sidney Ray contributes an elaborate article on "The People and Language of Lifu, Loyalty Islands." Capt. Cook missed the islands of the Loyalty group when he discovered New Caledonia in 1774, as did D'Entrecasteaux in 1793. Missionary work has gone on since 1840 in Maré, and since 1845 in Lifu, but since the annexation of the Loyalty Islands by France in 1864 there has been trouble with missionaries of the Protestant Church, and at present there is only one English missionary in the island. Mr. Ray's paper gives a series of glossaries and notes on the culture of the inhabitants. The use of a ceremonious language employed when addressing or referring to a person of high rank is an interesting and peculiar custom in Lifu and Nengone, but is strangely absent in the neighbouring island of Uvea.

DR. WALTER COLLINGE, in the *Scottish Naturalist* for May, directs attention to the very unsatisfactory methods commonly in use by economic ornithologists for estimating the food contents of the stomach or crop, as the case may be, in wild birds, for the purpose of determining the usefulness or otherwise of any given species to the farmer or gardener. Briefly, he shows that the volumetric standard adopted by the Biological Survey of the U.S. Department of Agriculture affords the only trustworthy source of information, and should become, indeed, the only recognised test. Each bird requires a certain bulk of food per day, not a certain number of different kinds of insects, seeds, etc., and rightly to estimate the importance of any element in its diet we must first know what proportion the insects, seeds, and so on constitute to the standard requirement. Two very helpful diagrams illustrate the paper.

How little the true nature of museum work is understood, even by many men of science, forms the subject of a very able essay by Dr. F. A. Bather in the *Museum Journal* for May. It seems incredible, for example, that a well-known British zoologist was recently found to believe that the specimens in the public gallery represented the whole collection of fishes in the British Museum of Natural History! After citing instances of the work done by museums in unravelling intricate problems, such as that presented by the attacks of beetle-larvæ on the roots of the sugar-canes in Mauritius, Dr. Bather proceeds to show the imperative need for the most refined, systematic study of living organisms, irrespective of any value they may have in relation to "applied science." This is the most valuable part of his essay, as it was meant to be, though we fear that the day is yet far distant when the general public will realise that science for its own sake is worth pursuing.

The Geological Survey of Queensland is to be congratulated on the progress it is making in publishing accounts of the fossils of that colony. The two concluding sections of part i. of Mr. A. B. Walkom's memoir on the Mesozoic floras of Queensland are especially interesting for comparison with the Jurassic and Rhætic floras of Europe, which they much resemble. In Publication No. 260 Mr. R. Etheridge, jun., describes some important fossil invertebrata, including Cretaceous crustaceans and a few fragments of the largest known Carboniferous trilobite, which measured about 60 mm. in breadth.

There is remarkable uniformity in the anatomy of flesh-eating dinosaurs of Mesozoic times, whether they are early or late, small or gigantic. They all have large hindquarters for bipedal walking, a long tail, very small mobile fore-limbs, and a more or less regular series of sabre-shaped teeth. Mr. Lawrence M. Lambe has just published a well-illustrated description of another genus, Gorgosaurus, from the Cretaceous rocks of Alberta, Canada (Geological Survey of Canada, Memoir 100). Its typical species is about 30 ft. in length, and is specially interesting as one of the latest carnivorous dinosaurs known. There is little new in the skeleton, but the fore-limbs seem to be even more reduced than usual.

The subject of soil aeration is attracting considerable attention in tropical agriculture, and numerous results are now being obtained, a summary of which was presented by Messrs. A. Howard and R. S. Hole to the Indian Science Congress at Lahore. The effect of adding potsherds or sand to the Pusa soil is shown to increase nitrification and plant growth; in the case of Java indigo the increase was as much as 40 per cent. Flood irrigation, on the other hand, on fine alluvial soils, interferes with their ventilation by rapidly destroying the texture and by forming a compact surface crust impermeable to air. One limiting factor—water—is removed, but another—the need for aeration—is introduced. Thus over-irrigation actually diminishes the yield. This is shown by results obtained at Quetta, where thirteen maunds of wheat were obtained with one irrigation and only eight maunds where three irrigations were given. In any flood irrigation system a practical compromise between the needs of the plant for air and for water must be worked out. This has been accomplished at Quetta by the proper utilisation of the preliminary watering given before sowing. Under this new system the yields are often higher than those obtained with the six or seven waterings usually applied. The Quetta results have been shown by experiment to apply to the Punjab and Sind, where almost half the irrigation water now used could be saved. The economic significance of these results becomes apparent when it is remembered that the annual revenue derived from irrigation works in India is 5,000,000*l.* sterling. It is further shown that aeration probably influences the distribution of plants, and is therefore of importance in ecological studies.

The Danish Meteorological Institute has published its report for 1917 on the state of the ice in the Arctic seas (Isforholdene i de Arktishe Have). War conditions have made it impossible to obtain as full reports as usual except from the coasts of Greenland, Iceland, Spitsbergen, and the Barents Sea. In Spitsbergen and the Barents Sea the ice conditions were again abnormal and most unfavourable. The winter ice in Spitsbergen fjords broke up a month later than usual, and the autumn ice formed several weeks ahead of the average date. There was pack-ice off the west coast of Spitsbergen throughout the summer months. The coast was most approachable during the first half of August and the second half of September. Throughout the summer it seems, as usual, to have been easier to enter King's Bay than fjords further south, but until late in July the pack on the west coast of Spitsbergen more or less met the pack of the Greenland Sea, and on this account it was not easy to reach the open water north of Prince Charles Foreland. Storfjord seems to have been clear of ice in September, and possibly in August. Reports from the Kara Sea are scanty, but the ice conditions there seem to have been bad. No vessel attempted to make the passage in 1917.

Some explorations in the previously little-known Tibetsi highlands of the Sahara by Col. Jean Tilho are summarised in an article in *La Géographie,* vol. xxxi., Nos. 6–8. The explorations were part of a long series of journeys between Lake Chad and the Anglo-Egyptian Sudan undertaken in the years 1912–17. Col. Tilho has established that the Tibetsi highlands are not a single range lying north-west and south-east, but consist of four, or perhaps five, ranges radiating between west-north-west and north-east from the Koussi massif. In this massif is the extinct volcano of Emi-Koussi, which rises to a height of 11,155 ft. above sea-level, and marks the summit of the Tibetsi highlands. Emi-Koussi has an enormous crater, eight miles long and about five miles broad, within which are several secondary craters, of which Era Kohor has a diameter of about two miles. In the bottom of this crater is a deposit of sodium carbonate covering about 100 acres and at least 4 ft. in depth. There is clear evidence of the former existence of a lake, but there is now no water. Among other interesting results, Col. Tilho claims to have established definitely that there was never any connection between Lake Chad and the Nile. Material has been obtained in most of the region traversed for a new map, which has been drawn on a scale of 1 to 1,000,000. No map accompanies the article.

The report on rainfall registration in 1916 in Mysore has just reached us. It includes maps showing the actual rainfall for the year 1916, and the average annual rainfall for the period 1870–1915. On June 25, 1916, more than 16 in. of rain fell during twenty-four hours at Nagar in the Shimoga district; the total rainfall at that place during June was 38 in., nearly 50 per cent. above the normal, although the total fall for 1916 was practically normal at 104 in. The rains during October and November, 1916, were above the normal on account of an exceptional number of cyclonic storms, which originated in the Bay of Bengal. The rains were on the whole but half of the normal during the cool-weather period, January and February, and also during March, the beginning of the hot-weather period. The deficiency was more than made up during the rest of the year, especially in the north-east monsoon period from October to the end of the year. The tables occupy fifty-eight pages, and give the details for the 224 stations under various heads; a notable table is that which gives the distribution in the river valleys.

Weather-controls over the fighting in Mesopotamia, in Palestine, and near the Suez Canal is the subject of an article by Prof. Robert DeC. Ward, of Harvard University, in the *Scientific Monthly* (April). Mesopotamia is characterised as "a country of aridity, of intense summer-heat, of deserts and steppes, of relatively mild winter, and of cold-season rains." The mean temperature at Bagdad for January is given as 48·7° F., and for August 92·5°; the mean maximum is 119·5°, and the mean minimum 21·9°, which are the mean extremes in the year. Winter frosts occur and snow falls locally. The total mean annual rainfall is only about 8 in. or 9 in., and in some years only about half as much. The rain falls between October and May, and the remaining months are practically rainless. February or March is the rainiest month; and the floods come in March and April. The climate of Palestine has been discussed by Exner and Hann, and the article quotes various data. The coast stations have a mean midwinter temperature of between 50° and 55° F., and mean midsummer temperature of 75° to 80°. The hill stations, at elevations of about 1500 ft. to 3000 ft., have mean midwinter temperatures from 45° to 50°, and midsummer means from 70° to a little under 80°. In the Jordan valley the temperatures range from 55° in midwinter to 85° or 90° in midsummer. Jerusalem averages 3·6 days a year with temperature below freezing, and the highest summer temperatures reach 100° to 105°. The annual rainfall at the coast stations ranges from 15 in. to 35 in., and at Jerusalem it is 26 in., no rain falling in June, July, and August. The rainy season extends from the middle of October to early in May. In the district of the Suez Canal the complete absence of rain for months together and the exceptionally small total annual fall in places immensely augments the difficulty of transport. The writer of the article says that winter is the best season for a campaign, both on account of the better water supply and of the lower temperature.

A preliminary report on the mineral production of Canada during the year 1917 has been issued by the Canadian Department of Mines. Although the total value of this production shows an increase over that for the previous year to the extent of 8·9 per cent., this is due almost entirely to increased values of the products, the quantities showing actual decreases in many cases. Thus the coal output, a little above 14 million tons, shows a decrease of 3·2 per cent.; the production of copper shows a decrease of 7·08 per cent., of lead of 22·71 per cent., of silver of 13 per cent., and of gold of 19·68 per cent. On the other hand, the production of zinc increased by 33·5 per cent., and that of cobalt by 29·62 per cent. There were trifling increases in the production of nickel and of pig-iron, though in the latter case this was due entirely to the production of iron in the electric furnace; furthermore, the pig-iron produced from Canadian ores showed a heavy decline, more imported ore having been smelted in 1917 than in 1916; a large proportion of the latter consists of Wabana ore from Newfoundland. Upon the whole, it may fairly be said that the mineral industry of Canada is holding its own reasonably well under the severe stress of war conditions.

In the *Elektrotechnische Rundschau* for September 26, 1917, a writer directs special attention to the process of steel hardening by air-blast, owing to shortage of oils in Germany. The hot tool is placed in an attachment capable of rotating freely. It is then exposed to the cold blast forced through a number of tubes in such a way as to rotate the tool. Drills, turning-tools, and other simple pieces may be cooled in the blast from a fan.

Acceleration in the deposition of metallic deposits may be obtained by suitable electrolytes, stirring the bath, and applying high temperatures. In this way it has been possible (according to *Elektrotechnik und Maschinenbau*, October 14, 1917) to produce cobalt deposits in three to five minutes with a current density of 29 amps. per dm.^{2} A nickel deposit that previously required 1½ hours can now be made in five minutes by using a solution of 220 grams nickel-sulphate, 21 grams nickel-chloride, and 21 grams boracic acid to one litre of water at 70° C., and using a current density of from 25 to 39 amps. per sq. dm. The action of high temperatures is said to bring about an increase of concentration of the ions. The method is not of universal application, as all solutions do not allow high temperatures to be used.

K. H. Güldner, in the *Zeitschrift des Vereines deutscher Ingenieure* for August 11 and 18, 1917, describes some investigations which he has carried out to determine the lateral deviation of projectiles caused by the spin imparted to them by the rifling of a trench-mortar. The trench-mortar provides a suitable means of carrying out such tests, as the motion of the projectile may be followed by the eye. Rifling with a right-handed twist may cause constant lateral deviation both to the right and left. Right or left deviation is the result of right or left precession, and is visible to the naked eye. Left precession with rifling having a right-handed twist can occur only after the maximum height of the trajectory has been passed if the centre of action of the air-resistance lies behind the centre of gravity of the shell. The precession on the ascending part of the trajectory is always greater than in the descending part.

The making of accurate screw gauges presents considerable difficulties, as is well known to those who undertook to manufacture these appliances for the Ministry of Munitions. A lathe having many novel features has been designed and made at the request of the Ministry by Messrs. Bryant, Symons, and Co., 320 St. John Street, London, E.C.1, and is described in *Engineering* for May 24. Both centres are dead centres, thus ensuring that work shall be round and not slightly elliptical. The effective pitch of the lead screw can be varied at will, so that it can produce a thread of slightly greater or smaller pitch than the standard; in this way shrinkage during hardening can be provided for in advance. The lead screws of all these lathes are tested separately, and a correction bar is fitted to compensate for local errors in each lead screw. Each tool, when sold, is accompanied by a certificate from the National Physical Laboratory as to its performance, and the certificate gives the errors found in a screw 8 in. long actually cut in the machine. The design of the machine, so far as can be determined from the drawings and photographs given in the article, is excellent, and the lathe should form a valuable addition to the equipment of gauge shops.

The May issue of the Transactions of the Optical Society is devoted almost entirely to papers on the methods of design of telescopic objectives. Mr. P. F. Everitt sets out clearly in order of importance the six conditions which it is desirable that an objective, so far as is practicable, should fulfil. He then shows how, by the help of tables such as those of Smith and Cheshire, the approximate radii of the surfaces of the objective are found, and corrected by tracing the paths of an axial and an edge ray through the system. Mr. T. Smith gives an account of the methods in use at the National Physical Laboratory which have furnished the tables just mentioned, and Mr. S. D. Chalmers gives an alternative method of making the calculation. In the discussion of the three papers Prof. Cheshire emphasised the importance of accurate computation of the properties of an objective before the manufacturer put tool to glass. We cannot in modern times wait for a sample to be made and tested before producing instruments in quantity. Mr. Conrady and Mr. Hasselkus contended that an objective should be designed to compensate the errors of the common eye-pieces, while Mr. Everitt declined to saddle the objective with this task.

Mr. C. Turnbull read a paper to the Institution of Electrical Engineers on May 9 in which he urged the necessity of having a "national proving house" for testing British engineering apparatus and materials. Although most of the speakers agreed with Mr. Turnbull, no one advanced any real proof that there was any urgent necessity for a commercial laboratory of this kind. We are not aware that there is any appreciable quantity of inferior apparatus or shoddy electrical materials in the market. The president, Mr. C. H. Wordingham, in opening the discussion, gave a summary of a report of the committee of the council which had been considering the subject. He began by saying that the proving house would not enter into competition with existing institutions, but it will be difficult to avoid doing so. It will be remembered that when the National Physical Laboratory was started this consideration caused considerable friction. As a proving house will have to be largely, if not altogether, self-supporting, little research work can be undertaken. Sir Richard Glazebrook welcomed the suggestion that the proving house should work in conjunction with the National Physical Laboratory. The experience of the working of the National Board of Fire Underwriters of the U.S.A., which has what is practically an electrical proving house, shows, however, that the main problems it is forced to consider are political, commercial, and international rather than scientific. Hence it may be advisable to leave the problems of a British national proving house to the engineers' and manufacturers' associations, as they are free to deal with such questions. Unless a much stronger case can be made out for it, the whole proposal will probably fall through.

In the Kjeldahl method for the estimation of nitrogen in organic compounds the substance is usually—in fact, almost invariably—digested with the sulphuric acid until a clear, transparent liquid is obtained. With some substances, *e.g.* indiarubber, a very prolonged period of digestion is thereby rendered necessary. Mr. Matthew Howie finds, however (Journal of the Society of Chemical Industry, March 30), that the whole of the nitrogen present in rubber is converted into ammonia in less time than is required to effect the complete dissolution of the substance. Using samples of plantation sheet and of Manihot rubber, it was found that 80 per cent. to 94 per cent. of the nitrogen was converted into ammonia after one hour's digestion, whilst three to four hours' digestion gave as high a nitrogen value as the six hours necessary for complete clarification of the solution. It is possible that in the case of other highly resistant nitrogenous substances the Kjeldahl estimation might be similarly shortened.

OUR ASTRONOMICAL COLUMN

May Meteors.—Between May 17 and 24 meteors have occasionally been abundant and given evidence of several well-defined showers. Whether or not this period is worthy of special note cannot be absolutely affirmed, though the evidence strongly suggests that it needs further investigation. This year some fine meteors were observed at Bristol on the mornings of May 18 and 19, and proved that several of the various systems which mark this epoch returned with tolerable strength.

In 1866, May 18, several of the assistants of the Royal Observatory, Greenwich, remarked a striking prevalence of bright meteors, and Mr. Denning found on projecting the roughly observed paths that the radiant was placed at 247°+32° near ζ Herculis. This shower was observed at Bristol in 1903, 1911, and a few other years, and from a general investigation of all the meteor tracks recorded at the latter station since 1875 during the period May 17–24 the following radiants seem well defined:—

° °	° °	° °	° °
194+57	245+62	280−13	312+61
223+41	248+29	280+31	316+31
227− 6	254−21	290+60	331+50
230+33	263+37	291+52	332+71
231+27	270+47	294± 0	334+58
241+48	273+22	311+80	354+40

Many periods of the year appear to be more noteworthy for the large number of streams visible than for the special richness of one or two.

Distance of the Pleiades.—Prof. W. H. Pickering has made a further application of the statistical method to the determination of the distance of the Pleiades (Harvard Circular, No. 206). Absolute magnitudes were calculated by Russell's formula $M=0\cdot6+2\cdot1(T-2)$, where M is the absolute magnitude and T the type of spectrum, counting B as 1, A as 2, F as 3, G as 4, and K as 5. The eighty-two stars considered range in type from B5 to A9, and, omitting the six brightest stars as being possible "super-giants," the average difference between apparent and absolute magnitudes is 6·46. This corresponds with a distance of 201 parsecs, or 656 light-years, the parallax being $0\cdot0050'' \pm 0\cdot0008''$. It thus appears that the Pleiades are about five times as remote as the Hyades, while the distance between the two farthest apart of the bright stars (63′) is 12 light-years. The brightness of Alcyone is estimated to be 2100 times that of the sun, while the other five bright stars average about 800 times as bright as the sun.

By the same method Prof. Pickering finds 301 light-years, or a parallax of $0\cdot0109'' \pm 0\cdot0026''$, for the Coma Berenices cluster.

The Spectroscopic Binary 42 Capricorni.—The variable radial velocity of this star was shown in